

DT02 Rec'd PCT/PTO

04 FEB 2005

PCT #3

PTO/SB/21 (09-04)

Approved for use through 07/31/2006. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TRANSMITTAL FORM (to be used for all correspondence after initial filing)	Application Number	10/511,121
	Filing Date	October 12, 2004
	First Named Inventor	Nicholas D. Spencer
	Art Unit	
	Examiner Name	
Total Number of Pages in This Submission	Attorney Docket Number	ETH 110

ENCLOSURES (Check all that apply)		
<input checked="" type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment/Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input checked="" type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Reply to Missing Parts/ Incomplete Application <input type="checkbox"/> Reply to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation <input type="checkbox"/> Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____ <input type="checkbox"/> Landscape Table on CD	<input type="checkbox"/> After Allowance Communication to TC <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input checked="" type="checkbox"/> Other Enclosure(s) (please identify below): three (3) pages of PTO-1449; 24 references; return postcard
Remarks		

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	Pabst Patent Group LLP		
Signature			
Printed name	Tiffany B. Salmon		
Date	February 2, 2005	Reg. No.	55,589

CERTIFICATE OF TRANSMISSION/MAILING

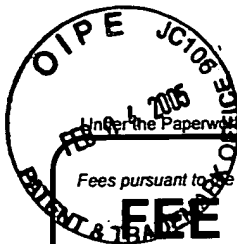
I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:			
Signature			
Typed or printed name	Donna Berman	Date	2-2-05

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

BEST AVAILABLE COPY

ETH 110 / 077046-00019



Effective on 12/08/2004.
Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

FEE TRANSMITTAL

For FY 2005

☒ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$) 0.00

Complete if Known

Application Number	10/511,121
Filing Date	October 12, 2004
First Named Inventor	Nicholas D. Spencer
Examiner Name	
Art Unit	
Attorney Docket No.	ETH 110

METHOD OF PAYMENT (check all that apply)

☐ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): _____

☒ Deposit Account Deposit Account Number: 50-3129 Deposit Account Name: Pabst Patent Group LLP

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

☐ Charge fee(s) indicated below ☐ Charge fee(s) indicated below, except for the filing fee
☒ Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17 ☒ Credit any overpayments

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fees Paid (\$)
	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	
Utility	300	150	500	250	200	100	
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Fee (\$)	Small Entity Fee (\$)
Each claim over 20 or, for Reissues, each claim over 20 and more than in the original patent	50	25
Each independent claim over 3 or, for Reissues, each independent claim more than in the original patent	200	100
Multiple dependent claims	360	180

Total Claims 15 - 20 or HP = 0 x Fee (\$) = Fee Paid (\$)

HP = highest number of total claims paid for, if greater than 20

Indep. Claims 4 - 4 or HP = 0 x Fee (\$) = Fee Paid (\$)

HP = highest number of independent claims paid for, if greater than 3

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets - 100 = Extra Sheets / 50 = Number of each additional 50 or fraction thereof x Fee (\$) = Fee Paid (\$)

4. OTHER FEE(S)

Non-English Specification, \$130 fee (no small entity discount)

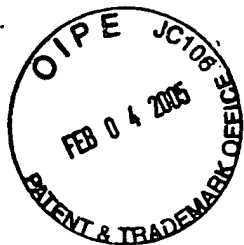
Other: _____

SUBMITTED BY

Signature		Registration No. (Attorney/Agent)	55,589	Telephone	(404) 879-2153
Name (Print/Type)	Tiffany B. Salmon	Date	February 2, 2005		

This collection of information is required by 37 CFR 1.136. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Nicholas D. Spencer and Seunghwan Lee

Serial No.: 10/511,121

Art Unit: Not Yet Assigned

Filed: October 12, 2004

Examiner: Not Yet Assigned

For: *ENVIRONMENTALLY COMPATIBLE ADDITIVES FOR AQUEOUS LUBRICANTS*

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

Sir:

Pursuant to 37 C.F.R. §1.56 and 37 C.F.R. §1.97, Applicants submit an Information Disclosure Statement, including three (3) pages of Form PTO-1449 and a copy of each document cited therein.

This Information Disclosure Statement is being filed under 37 C.F.R. § 1.97(b) prior to a first Office Action on the merits. It is believed that no fee is required with this submission. However, should a fee be required, the Commissioner is hereby authorized to charge any required fees to Deposit Account No. 50-3129.

U.S. Patents

<u>Number</u>	<u>Issue Date</u>	<u>Patentee</u>	<u>Class/Subclass</u>
5,462,990	10-31-1995	Hubbell, et al.	525/54.1
5,536,573	07-16-1996	Rubner, et al.	428/378
5,627,233	05-06-1997	Hubbell, et al.	525/54.1

Foreign Documents

<u>Number</u>	<u>Publication Date</u>	<u>Patentee</u>	<u>Country</u>
WO 98/47948	10-29-1998	California Institute of Technology	PCT
WO 00/65352	11-02-2000	Eidgenossisch Technische Hochschule Zurich	PCT

Publications

BASU et al., "Fretting wear behavior of TiB₂-based materials against bearing steel under water and oil lubrication" *WEAR*, 250: 631-41(2001).

CHEN et al., "The difference in running-in period and friction coefficient between self-mated Si₃N₄ and SiC under water lubrication" *Tribology Letters*, 11(1): 23-28 (2001).

DUAN and LEI, "The effect of particle size on the lubricating properties of colloidal polystyrene used as water based lubrication additive" *WEAR*, 249(5-6): 528-32 (2001).

FRANCISCO et al., "Multilevel solution of the elastohydrodynamic contact for the water lubricated silicon carbide 3D line contact" *Tribology Transactions*, 45(1): 110-16 (2002).

HOLLINGER et al., "High-pressure lubrication with lamellar structures in aqueous lubricant" *Tribology Letters*, 9(3-4): 143-151 (2000).

JAY et al., "Comparison of the boundary-lubricating ability of bovine synovial fluid, lubricin, and healon" *J. Biomed. Mat. Res.*, 40(3): 414-418 (1998).

LEI et al., "Tribological behavior of fullerene-styrene sulfonic acid copolymer as water-based lubricant additive" *WEAR*, 252(3-4): 345-50 (2002).

PLAZA et al., "Tribological performance of some polyoxyethylene dithiophosphate derivatives water solutions" *WEAR*, 249 (12): 1077-89 (2001).

RATOI-SALAGEAN et al., "The design of lubricious oil-in-water emulsions" *Proceedings Inst. Mech. Engin. Part J: Journal Engin. Tribology*, 211(J): 195-208 (1997).

RATOI-SALAGEAN et al., "Optimizing film formation by oil-in-water emulsions" *Tribology Transactions*, 40(4): 569-78 (1997).

REGENAUER-LIEB et al., "The initiation of subduction: Criticality by addition of water?" *Science*, 294(5542) 578-80 (2001).

SAITO et al., "Chemical wear of sintered Si_3N_4 hBN and Si_3N_4 -hBM composites by water lubrication" *WEAR*, 247(2): 223-30 (2001).

SCHWARZ and HILLS, "Surface-active phospholipids as the lubricating component of lubricin" *Brit. J. Rheumatology*, 37(1): 21-26 (1998).

SMITH et al., "Does additional lubrication affect condom slippage and breakage?" *Int. J. STD & AIDS*, 9(6):330-335 (1998.)

UMEHARA and KATO, "The effect of initial surface roughness on friction of self-mating silicon nitride in water" *J. Japan. Soc. Tribologists*, 42(11): 879-85 (1997).

VEITH, "Tire wet traction - Explaining performance variation using the 'criticality' concept" *Rubber Chem. Technol.*, 69(5): 858-73 (1996).

WANG et al., "Study of the key problems in a water hydraulic piston pump and its applications" *Indust. Lubric. and Tribology*, 53(5): 211-16 (2001).

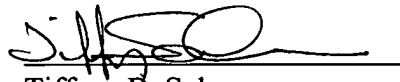
WIDMER et al., "Influence of polymer surface chemistry on frictional properties under protein-lubrication conditions: implications for hip-implant design" *Tribology Letters*, 10(1-2): 111-16 (2001).

XIONG and GE, "Friction and wear properties of UHMWPE/ Al_2O_3 ceramic under different lubricating conditions" *WEAR*, 250: 242-45 (2001).

Remarks


This statement should not be interpreted as a representation that an exhaustive search has been conducted or that no better art exists. Moreover, Applicants invite the Examiner to make an independent evaluation of the cited art to determine its relevance to the subject matter of the present application. Applicants are of the opinion that their claims patentably distinguish over the art referred to herein, either alone or in combination.

Respectfully submitted,


Tiffany B. Salmon
Reg. No. 55,589

Dated: February 2, 2005

PABST PATENT GROUP LLP
400 Colony Square, Suite 1200
1201 Peachtree Street
Atlanta, Georgia 30361
(404) 879-2153 (Telephone)
(404) 879-2160 (Fax)

Substitute for form 1449A/PTO			Complete if Known	
<p align="center">INFORMATION DISCLOSURE STATEMENT BY APPLICANT</p> <p align="center">(Use as many sheets as necessary)</p> 			Application Number	10/511,121
			Filing Date	October 12, 2004
			First Named Inventor	Nicholas D. Spencer
			Group Art Unit	
			Examiner Name	
			Attorney Docket Number	ETH 110
Sheet	of	3		

[illegible][illegible]

+



Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Complete if Known			
		Application Number	10/511,121		
		Filing Date	October 12, 2004		
		First Named Inventor	Nicholas D. Spencer		
		Group Art Unit			
		Examiner Name			
Sheet	2	of	3	Attorney Docket Number	ETH 110

OTHER ART – NON PATENT LITERATURE DOCUMENTS			
Examiner's Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T ²
		BASU et al., "Fretting wear behavior of TiB ₂ -based materials against bearing steel under water and oil lubrication" <i>WEAR</i> , 250: 631-41(2001).	
		CHEN et al., "The difference in running-in period and friction coefficient between self-mated Si ₃ N ₄ and SiC under water lubrication" <i>Tribology Letters</i> , 11(1): 23-28 (2001).	
		DUAN and LEI, "The effect of particle size on the lubricating properties of colloidal polystyrene used as water based lubrication additive" <i>WEAR</i> , 249(5-6): 528-32 (2001).	
		FRANCISCO et al., "Multilevel solution of the elastohydrodynamic contact for the water lubricated silicon carbide 3D line contact" <i>Tribology Transactions</i> , 45(1): 110-16 (2002).	
		HOLLINGER et al., "High-pressure lubrication with lamellar structures in aqueous lubricant" <i>Tribology Letters</i> , 9(3-4): 143-151 (2000).	
		JAY et al., "Comparison of the boundary-lubricating ability of bovine synovial fluid, lubricin, and healon" <i>J. Biomed. Mat. Res.</i> , 40(3): 414-418 (1998).	
		LEI et al., "Tribological behavior of fullerene-styrene sulfonic acid copolymer as water-based lubricant additive" <i>WEAR</i> , 252(3-4): 345-50 (2002).	
		PLAZA et al., "Tribological performance of some polyoxyethylene dithiophosphate derivatives water solutions" <i>WEAR</i> , 249 (12): 1077-89 (2001).	
		RATOI-SALAGEAN et al., "The design of lubricious oil-in-water emulsions" <i>Proceedings Inst. Mech. Engin. Part J: Journal Engin. Tribology</i> , 211(J): 195-208 (1997).	
		RATOI-SALAGEAN et al., "Optimizing film formation by oil-in-water emulsions" <i>Tribology Transactions</i> , 40(4): 569-78 (1997).	
		REGENAUER-LIEB et al., "The initiation of subduction: Criticality by addition of water?" <i>Science</i> , 294(5542) 578-80 (2001).	
		SAITO et al., "Chemical wear of sintered Si ₃ N ₄ hBN and Si ₃ N ₄ -hBM composites by water lubrication" <i>WEAR</i> , 247(2): 223-30 (2001).	
Examiner's Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to application.

¹ Unique citation designation number ² See attached Kinds of U.S. Patent Documents. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SENT TO: Assistant Commission for Patent, Washington, DC 20231.





Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)			Complete if Known		
			Application Number	10/511,121	
			Filing Date	October 12, 2004	
			First Named Inventor	Nicholas D. Spencer	
			Group Art Unit		
			Examiner Name		
Sheet	3	of	3	Attorney Docket Number	ETH 110

OTHER ART – NON PATENT LITERATURE DOCUMENTS			
Examiner's Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T ²
		SCHWARZ and HILLS, "Surface-active phospholipids as the lubricating component of lubricin" <i>Brit. J. Rheumatology</i> , 37(1): 21-26 (1998).	
		SMITH et al., "Does additional lubrication affect condom slippage and breakage?" <i>Int. J. STD & AIDS</i> , 9(6):330-335 (1998.)	
		UMEHARA and KATO, "The effect of initial surface roughness on friction of self-mating silicon nitride in water" <i>J. Japan. Soc. Tribologists</i> , 42(11): 879-85 (1997).	
		VEITH, "Tire wet traction - Explaining performance variation using the 'criticality' concept" <i>Rubber Chem. Technol.</i> , 69(5): 858-73 (1996).	
		WANG et al., "Study of the key problems in a water hydraulic piston pump and its applications" <i>Indust. Lubric. and Tribology</i> , 53(5): 211-16 (2001).	
		WIDMER et al., "Influence of polymer surface chemistry on frictional properties under protein-lubrication conditions: implications for hip-implant design" <i>Tribology Letters</i> , 10(1-2): 111-16 (2001).	
		XIONG and GE, "Friction and wear properties of UHMWPE/Al ₂ O ₃ ceramic under different lubricating conditions" <i>WEAR</i> , 250: 242-45 (2001).	

Examiner's Signature		Date Considered	
----------------------	--	-----------------	--

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to application.

¹ Unique citation designation number ² See attached Kinds of U.S. Patent Documents. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SENT TO: Assistant Commission for Patent, Washington, DC 20231.

